Hazardous Substance USTs

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What are Hazardous Substance USTs?

- UST systems that contain a substance identified as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (but not including any hazardous waste under subtitle C) or any mixture of substances and petroleum, and which is not a petroleum UST system.

What are the Hazardous Substances?

- Currently about 1200 substances (excluding radionuclides) are identified as hazardous under CERCLA.
- List of hazardous substances is found in Title 40 Part 302 – Table 302.4 (http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr302_01.html).
- Examples include: benzene, ammonia, phenol, methanol, nickel, etc.

What are the Requirements for Hazardous Substance USTs?

- Regulations are in 40 CFR 280.42.
- Must meet the same requirements for petroleum USTs concerning installation, spill, overfill, corrosion protection, corrective action, and closure.
- Must have secondary containment and interstitial monitoring.
- FR is not required.

What is Secondary Containment?

- Placing one tank inside another tank or one pipe inside another pipe (making them double-walled systems).
- Placing the UST system inside a concrete vault.
- Lining the excavation zone around the UST system with a liner that cannot be penetrated by the hazardous substance.

What is Interstitial Monitoring?

- Using a leak detection system that detects the presence of a leak in the confined space between the first and second wall.
- Interstitial means “between the walls.”

Specific Requirements – Secondary Containment

- “Contain regulated substances released from the tank system until they are detected and removed;”
- “Prevent the release of regulated substances to the environment at any time during the operational life of the UST system;”
- “Be checked for evidence of a release at least every 30 days.”

* The provisions of 40 CFR 265.193 (Hazardous Waste Tanks), Containment of Detection of Releases, may be used to comply with these requirements.

Specific Requirements – Double-Walled Tanks

- “Contain a release from any portion of the inner tank within the other wall; and”
- “Detect the failure of the inner wall.”

Specific Requirements – External Liners (including vaults)

- “Contain 100 percent of the capacity of the largest tank within its boundary;”
- “Prevent the interference of precipitation or ground-water intrusion with the ability to contain or detect a release of regulated substances;”
- “Surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances).”

Specific Requirements - Piping

- “Must be equipped with secondary containment that satisfies the requirements of paragraph (b)(1) of this section (e.g., trench liners, jacketing of double-walled pipe).”
- “Underground piping that conveys regulated substances under pressure must be equipped with line leak detector in accordance with § 280.44(a).”

What Must a Facility do to Obtain a Variance from Secondary Containment with Interstitial Monitoring?

- Demonstrate to the implementing agency that the alternative leak detection method will work as effectively as the release detection methods described in §§ 280.43(b) – (h) for petroleum;
- Receive approval from the implementing agency before the installation and operation of the system.

Case Study - WWTP

- WWTP in DC has 4-8700 gallon methanol USTs.
- Tanks are constructed of double-walled steel with fiberglass and are stored in individual underground vaults, which are backfilled with pea gravel.
- Piping is pressurized, single-walled, constructed of stainless steel, and is primarily in concrete-lined trenches.
- Transfer pump is used to transfer the methanol from the tank to the piping and into a day tank for storage.


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DRIVER
DO NOT UNLOAD CHEMICAL
UNTIL RED LIGHT IS ON
METHANOL
FLAMMABLE
NO SMOKING OR
OPEN FLAMES
3
1
0
GROUND TRUCK
BEFORE UNLOADING
2005 11 17

Release Detection

- Tank – Vapor sensors located in the monitoring well outside of the methanol storage tanks and within the concrete vault.
- Piping – Vapor sensors located in the pipe chase.

Monitoring Systems

Issues We Encountered

- Does vapor monitoring require a variance? Would it need to meet the requirements 40 CFR 280.43(e) (e.g., having an assessment)?
- Although the vapor sensors located in the monitoring well outside of the methanol storage tanks and within the concrete vaults were still in place, the double-walled tanks were not designed to detect the failure of the inner wall.
- Previous tank monitoring system monitored Lower Explosive Limit (LEL). Is that acceptable?